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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/814,398

03/31/2004

Alex Levin

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09/01/2006

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EXAMINER

SIEK, VUTHE

ART UNIT

PAPER NUMBER

2825

DATE MAILED: 09/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/814,398	LEVIN ET AL.	
	Examiner	Art Unit	
	Vuthe Siek	2825	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-9,11-15 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 2,10,16 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/22/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to application 10/814,398 filed on 3/31/2004.

Claims 1-20 remain pending in the application.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "440" has been used to designate both "Signal Termination Device" and "PAD" in Fig. 5. Fig. 5 is suggested to change from, "Signal Termination Device 440" to --Signal Termination Device 430--, to properly define item number according to specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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Claim Objections

3. Claim 17 is objected to because of the following informalities: claim 17 should be dependent on claim 16 to correctly provide claim antecedent basis. Appropriate correction is required.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-13 of U.S. Patent No.

6,751,782 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims in the patent as a whole would anticipate the claims in the instant application since an apparatus as recited in the patent is recognized to one skilled in the art as an output driver as in recited in the instant application.

Claim Rejections - 35 USC § 102

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6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3-8 and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Barraclough (5,739,707).

8. As to claims 1 and 11, Barraclough teaches substantially the same an output driver comprising a pull-up circuit coupled to a signal terminator device, the pull-up circuit including pull-up compensation resistive element; and a pull-down compensation resistive element (Fig. 3-4, Fig. 4 show a multiplicity of pull-up transistors and a multiplicity of pull-down transistors coupled to the output conductor through pull-up resistors (pull-up compensation resistive element) and pull-down resistors (pull-down compensation resistive element), respectively) (see summary; col. 3 lines 5-13). The output driver provides a constant impedance voltage source with slew rate limiting (col. 2 lines 48-64). Since the output driver and system as taught by Barraclough comprises substantially same structure, the functionality of the pull-up and pull-down compensation resistive elements would also provide analog compensation of output driver signal slew rate against device impedance variation. Barraclough teaches the output driver is used a communication system (col. 1 lines 5-7; lines 23-25). The communication system inherently includes a peripheral device and a chipset having an output driver circuit to couple to the peripheral device with the chipset via an interconnect.

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9. As to claims 3-4 and 12-13, Fig. 4 show a plurality of pull-up devices (pull-up transistors), each pull-up device coupled between a driver supply voltage and the signal termination device and a plurality of pull-down devices (pull-down transistors), each pull-down device coupled between a driver group and the signal termination device. Fig. 3 shows signal termination device 304 and 308.

10. As to claims 5-6, Fig. 4 show an output driver/system substantially same structure claimed. Fig.4 show the pull-up devices comprise a plurality of PMOS devices (401-405) having a source coupled to the driver supply voltage, a drain coupled to the signal termination device and a gate to receive a pull-up signal to activate the PMOS device to generate a rising transition at the driver output pad. The pull-down devices comprise a plurality of NMOS devices (406-410) having a source coupled to the driver supply voltage, a drain coupled to the signal termination device and a gate to receive a pull-up signal to activate the PMOS device to generate a rising transition at the driver output pad. Since the pull-up devices and pull-down devices comprise substantially same structure the pull-up devices also generate a crowbar current using a falling signal transition at the driver output pad and the pull-down devices also generate a crowbar current using a falling signal transition at the driver output pad.

11. As to claims 7-8 and 14, Fig. 4 show the pull-up compensation resistive elements (416-420) is coupled, in series, between a selected pull-up device and the signal terminal device; and the pull-up compensation resistive elements (411-415) is coupled, in series, between a selected pull-down device and the signal termination device.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 9, 15 and 18-20 are rejected under 35 U.S.C. 103(a) as being obvious over Barraclough (5,739,707) in view of applicant admitted prior art.

14. As to claims 9 and 15, Barraclough does not teach the signal termination device (resistors 304 and 308, Fig. 3), pull-up compensation resistive element and pull-down compensation resistive element in Nwell resistive element, but applicant admitted that an Nwell structure is simple to create and consumes a relatively small die area (0003). With these motivations, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the resistive elements as taught by Barraclough in Nwell resistive element.

15. As to claims 18-20, Barraclough teaches the output driver is used a communication system (col. 1 lines 5-7; lines 23-25). The communication system inherently includes a peripheral device and a chipset having an output driver circuit to couple to the peripheral device with the chipset via an interconnect. It is noticed that the chipset comprises an I/O controller hub, a memory controller and an integrated driver electronic (IDE) output device. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have integrated an I/O controller hub, a

memory controller and an integrated driver electronic output device in the chipset in order to facilitate data communication within the communication system.

Allowable Subject Matter

16. Claims 2, 10, 16 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art of record does not teach or fairly suggest does not teach or fairly suggest a pull-up pre-driver to selectively generate pull-up signals to cause a rising signal transition at the driver output pad; and a pull-down pre-driver to selectively generate pull-down signals to cause a falling signal transition at the driver output pad, such that a slew rate of a driver output signal is within a predetermined slew rate range and the predetermined slew rate range is between 0.4 volts per nanosecond (v/ns) and 1.0 v/ns.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vuthe Siek whose telephone number is (571) 272-1906.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Chiang can be reached on (571) 272-7483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Vuthe Siek


VUTHE SIEK
PRIMARY EXAMINER